

Project Integration Management				
Process	Input	Tools and Techniques	Output	Notes
Develop Project Charter	<ul style="list-style-type: none"> <li>- Contract(if applicable)</li> <li>- Statement Of Work (SOW)</li> <li>- Enterprise Environmental Factors</li> <li>- Organizations Process Assets</li> <li>- Business Case</li> </ul>	-Expert Judgment	-Project Charter	Project Selection Methods 1- Benefit Measurement Methods a. Economic Models b. Scoring Models c. Comparative Approach d. Benefit Contribution e. Murder Board 2- Constrained Optimization Methods a. Linear b. Non-Linear c. Dynamic d. Integer e. Multi-objective algorithms
Develop Project Management Plan	<ul style="list-style-type: none"> <li>-Project Charter</li> <li>-Outputs from Planning Processes</li> <li>-EEF/OPA</li> </ul>	-Expert judgment	-PM Plan	-PM Plan is Formal, single document, approved (becomes officially the project plan. It defines how project is executed and controlled. Scope, schedule, and Cost, Change, and Configuration Management plans are created in this process and are part of the PM plan - Scope Management plan is developed here as well
Direct and Manage Project execution	<ul style="list-style-type: none"> <li>-PM Plan</li> <li>-Approved Change Requests</li> <li>-EEF/OPA</li> </ul>	<ul style="list-style-type: none"> <li>-Expert Judgment</li> <li>-PMIS</li> </ul>	<ul style="list-style-type: none"> <li>-Deliverables</li> <li>-Work Performance Information</li> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project Document updates</li> </ul>	-Change Requests: 1. Corrective Actions 2. Preventive Actions 3. Defect Repair 4. Updates
Monitor and Control Project work	<ul style="list-style-type: none"> <li>-PM Plan</li> <li>-Performance Reports</li> <li>-EEF/OPA</li> </ul>	-Expert Judgment	<ul style="list-style-type: none"> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project Document updates</li> </ul>	
Perform Integrated Change Control	<ul style="list-style-type: none"> <li>-PM Plan</li> <li>-Work Performance Information</li> <li>-Change Requests</li> <li>-EEF/OPA</li> </ul>	<ul style="list-style-type: none"> <li>-Expert Judgment</li> <li>-Change Control meetings</li> </ul>	<ul style="list-style-type: none"> <li>-Change request status updates</li> <li>-PM Plan updates</li> <li>-Project document updates</li> </ul>	-Changes may be requested by any stakeholder
Close Project or Phase	<ul style="list-style-type: none"> <li>-PM Plan</li> <li>-OPA</li> <li>-Accepted Deliverables(come from verify scope)</li> </ul>	-Expert Judgment	<ul style="list-style-type: none"> <li>-Final Product, Service, or Result transition</li> <li>-OPA updates</li> </ul>	

Project Scope Management				
Process	Input	Tools and Techniques	Output	Notes
Collect Requirements	<ul style="list-style-type: none"> <li>-Project Charter</li> <li>-Stakeholder Register</li> </ul>	<ul style="list-style-type: none"> <li>-Interviews</li> <li>-Focus Groups</li> <li>-Facilitated Workshops</li> <li>-Group Creativity Technique</li> <li>-Group decision making techniques</li> <li>-Questionnaires and Surveys</li> <li>-Observation(Job Shadowing)</li> <li>-Prototypes</li> </ul>	<ul style="list-style-type: none"> <li>-Requirements Management Plan (how requirements will be analyzed, documented, and managed throughout the project)</li> <li>-Requirements Traceability Matrix(map requirements to their sources)</li> <li>-Requirements Documentation</li> </ul>	Facilitated Workshops examples: JAD and Quality Function Deployment Group Creativity Technique examples: -Brainstorming -Nominal Group Technique: enhances brainstorming with voting process -Delphi Technique -Idea and Mind Mapping -Affinity Diagram: large numbers of ideas to be sorted into groups Group Decision making technique -Unanimity: everyone agrees on single course of action -Majority: support from more than 50% of the members of the group -Plurality: the largest block in a group decides even if a majority is not achieved -Dictatorship: one individual makes the decision for the group
Define Scope	<ul style="list-style-type: none"> <li>-OPA</li> <li>-Project Charter</li> <li>-Requirements Documentation</li> </ul>	<ul style="list-style-type: none"> <li>-Product Analysis(product engineering, value and systems engineering)</li> <li>-Expert Judgment</li> <li>-Facilitated Workshops</li> <li>-Alternative Analysis(brainstorming, lateral thinking, pair wise comparison)</li> </ul>	<ul style="list-style-type: none"> <li>-Project Scope Statement</li> <li>-Project Document updates</li> </ul>	Project Scope statement includes: -Product scope description -Product acceptance criteria -Project Deliverables -Project inclusions and exclusions -Project constraints -Project assumptions
Create WBS	<ul style="list-style-type: none"> <li>-OPA</li> <li>-PSS</li> <li>-Requirements Documentation</li> </ul>	-Decomposition	<ul style="list-style-type: none"> <li>-WBS</li> <li>-WBS dictionary</li> <li>-Scope Baseline</li> <li>-Project Document updates</li> </ul>	<ul style="list-style-type: none"> <li>-Code of account is used to name the WBS (uid)</li> <li>-Planning packages are between Control Accounts and Work Packages</li> <li>-WBS isn't time based</li> <li>-WBS does form the Scope Baseline</li> <li>-WBS is a communication tool</li> <li>-Created by the entire team</li> </ul>
Verify Scope	<ul style="list-style-type: none"> <li>-PM Plan(Scope baseline)</li> <li>-Requirements documentation</li> <li>-Validated Deliverable</li> <li>-Requirements Traceability Matrix</li> </ul>	-Inspection	<ul style="list-style-type: none"> <li>-Change Requests</li> <li>-Project Document Updates</li> <li>-Accepted Deliverables</li> </ul>	Formal process to verify and obtain stakeholder acceptance of the completed project scope and deliverables -Usually performed after Perform Quality Control -Verify Scope is concerned with completeness, and Perform Quality Control is concerned with correctness -If the project is cancelled before completion, Verify Scope is performed to show where the Project was in relation to the Scope when it ended
Control Scope	<ul style="list-style-type: none"> <li>-PM Plan(Scop Baseline)</li> <li>-Work Performance Info</li> <li>-Requirements Documentation</li> <li>-Requirements Traceability Matrix</li> <li>-OPA</li> </ul>	-Variance Analysis	<ul style="list-style-type: none"> <li>-Work Performance Measurements</li> <li>-OPA updates</li> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project Document updates</li> </ul>	Integrated Change Control spans: -Control Scope -Control Schedule -Control Cost -Quality Control -Monitor and Control Risk -Administer Procurements

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Project Time Management				
Process	Input	Tools and Techniques	Output	Notes
Define Activities	-EEF/OPA -Scope Baseline	-Decomposition -Rolling wave planning -Expert Judgment -Template, forms, standards	-Activity List -Milestone List -Activity Attributes	Rolling wave planning: Lets you plan as you go -Control Accounts ( placed higher than work packages) -Planning Package(placeholder put between control accounts and work packages)
Sequence Activities	-PSS -Activity List -Activity Attributes -Approved Change Requests -Milestone list -OPA	-Precedence Diagramming Technique (PDM) -Scheduled Network Templates -Dependency Determination -Leads ,Lags and Floats	-Project Scheduled Network Diagrams -Project documents updates (Activity List)	-External Predecessors -Discretionary Predecessors (Preferred logic, Soft logic) -Mandatory Predecessors (Hard logic) -Floats or slacks: task may be delayed without affecting Project finish time or another task start time
Estimate Activity Resources	-EEF/OPA -Activity List -Activity Attributes -Resource Availability	-Bottom- up Estimating -Expert Judgment -Alternative Analysis -Published Est. Data -PM Software	-Activity Resource Requirements -Resource Breakdown Structure (RBS) -Project document updates	-Bottom-up estimating: Breaking down complex activities into pieces. -Published Est. Data: Published data as books and journals -Alte. Analysis: means considering several different options for how to assign resources
Estimate Activity Durations	-EEF/OPA -PSS -Activity List -Activity List Attributes -Resource Calendar -Activity Resource Requirements	-Analogous Estimating -Parametric Estimating -Three point Estimates -Reserve Analysis -Expert Judgment	-Activity Duration Estimates -Project Documents updates	-Analogous( top down): is when you look at activities from previous similar jobs -Parametric: means using mathematical models, computer, software, etc.. to come up with the estimate -Three point (PERT Program Evaluation and Review Technique)): Come up with three points, Optimistic, Pessimistic, and Most Likely $PERT = P+4R+O/6$ Standard Deviation $\sigma = (P-O)/6$ -Reserve Analysis: Adding extra time, contingency or buffer)
Develop Schedule	-EEF/ OPA -PSS -Activity List and Attributes -Activity Duration Estimates -Activity Resource Requirements -Project Schedule Network Diagrams -Resource Calendar	-Schedule Network Analysis -Critical Path Method -Schedule Compression -What-If Scenario Analysis (Monte Carlo) -Resource Leveling -Critical Chain Method -Applying Leads and Lags -Scheduling tool	-Project Schedule (Network Diagrams, Gantt Charts, Milestone list) -Schedule Baseline -Project Document updates -Schedule data	-Critical Chain method: Resource dependencies are used to determine the critical path. Determine latest possible start and finish date for each activity and then add schedule buffer. -Resource Leveling: Evaluates all of the resources to see if the critical path needs to change. -Float: amount of time an activity can slip before it causes delay in project -Float for activities on CP is 0. CP- next longest path= float. -EF= ES + Dur - 1 -LF = LS + Dur - 1 -ES= Prev EF + 1 -Last LF is the same as Last EF. -LS = LF- duration + 1 -Prev LF = Next LS – 1 -Float = LS- ES -Schedule Compression: includes Fast-tracking and crashing. Crashing almost always increases cost -Heuristics: Rules for which no formula exists. Usually derived through trial and error. -Free Float: how much time an activity can be delayed without affecting the early start date of subsequent dependent activities.
Control Schedule	-PM Plan(Schedule Management Plan) -Work Performance Info -Project schedule -OPA	-Performance reviews -Variance analysis -Resource leveling -PM software -What-if scenario -Adjusting Leads and Lags -Schedule Compression -Scheduling tool	-Work Performance Measurements -OPA updates -Change Requests -PM Plan updates -Project document updates	-S-Curve -1 $\sigma$ = 68.27% -2 $\sigma$ = 95.45% -3 $\sigma$ = 99.73%

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Project Cost Management				
Process	Input	Tools and Techniques	Output	Notes
Estimate Costs	<ul style="list-style-type: none"> <li>-EEF (Market condition, Commercial databases)</li> <li>-OPA</li> <li>-Scope baseline</li> <li>-Schedule</li> <li>-Risk Register</li> <li>-HR plan</li> </ul>	<ul style="list-style-type: none"> <li>-Analogous Estimating</li> <li>-Bottom-up Estimating</li> <li>-Parametric Estimating</li> <li>-Cost of Quality</li> <li>-Vendor Bid Analysis</li> <li>-Reserve Analysis</li> <li>-Expert Judgment</li> <li>-Three-point estimates</li> <li>-PM estimating software</li> </ul>	<ul style="list-style-type: none"> <li>-Activity Cost Estimates</li> <li>-Activity Cost Estimate supporting detail (basis of estimates)</li> <li>-Project document updates</li> </ul>	<ul style="list-style-type: none"> <li>-Cost of quality: Cost that is incurred to achieve required quality</li> <li>-Rough order of magnitude: As the project moves, estimates should become more accurate</li> <li>-Direct Costs: Costs that can be directly attributed to a specific project or service</li> <li>-Indirect Costs: costs not directly attributed to a specific project or service</li> <li>-Fixed Costs: costs that do not change based on business volume</li> <li>-Variable Costs: costs that do change based on business volume</li> <li>-Stranded/Sunk Costs: costs uncured that cannot be reversed irrespective to future events</li> <li>-Value Engineering/ Analysis: Doing the same work for less. E.g. outsourcing</li> <li>-Marginal analysis: Spend time on improvement if it improves revenues or productivity.</li> <li>-Order of Magnitude Estimate: -50% to +100%</li> <li>-Conceptual Estimate: -30% to + 50%</li> <li>-Preliminary Estimate: -20% to +30%</li> <li>-Definitive Estimate: -15% to +20%</li> <li>-Control Estimate: -10% to +15%</li> </ul>
Determine Budget	<ul style="list-style-type: none"> <li>-Activity Cost Estimates</li> <li>-Basis of estimates</li> <li>-Scope Baseline (represents PSS,WBS, and WBS dictionary)</li> <li>-Resource Calendar</li> <li>-Project schedule</li> <li>-Contracts</li> <li>-OPA</li> </ul>	<ul style="list-style-type: none"> <li>-Cost Aggregation</li> <li>-Reserve Analysis</li> <li>-Expert Judgment</li> <li>-Historical relationships</li> <li>-Funding limit reconciliation</li> </ul>	<ul style="list-style-type: none"> <li>-Cost Performance Baseline</li> <li>-Project funding requirements</li> <li>-Project document updates</li> </ul>	<ul style="list-style-type: none"> <li>-Budget (also called cost performance baseline), is time-phased. It is performed after Define Activities, Estimate Durations, Estimate Resources, and Develop Schedule.</li> <li>-Planned Value (PV). Also called Budgeted Cost of Work Schedule (BCWS)</li> <li>-Earned Value (EV). Also called Budgeted Cost of Work Performed (BCWP)</li> <li>-Actual Cost (AC). Also called Actual Cost of Work Performed (ACWP)</li> <li>-Cost Variance (CV)</li> <li>-Schedule Variance (SV)</li> <li>-Budget at Completion (BAC)</li> <li>-Estimate at Completion (EAC)</li> <li>-Estimate to Complete (ETC)</li> <li>-Variance at Completion (VAC)</li> <li>-Estimate at Completion (EAC)</li> <li>-Estimate to Complete (ETC)</li> <li>-Variance at Completion (VAC)</li> <li>-Cumulative CPI: The rate at which the project performance is meeting cost expectations from the beginning up to a point in time. Also used to forecast project's cost at completion</li> <li>-To-Complete Performance Index (TCPI): performance which must be achieved on all remaining work in order to meet either financial or schedule goals. Two forms, TCPI<sub>C</sub> and TCPI<sub>S</sub></li> </ul>
Control Costs	<ul style="list-style-type: none"> <li>-PM plan</li> <li>-Project funding requirements</li> <li>-Work Performance Information</li> <li>-OPA</li> </ul>	<ul style="list-style-type: none"> <li>-EVM Measurement</li> <li>-Forecasting</li> <li>-To-Complete performance index</li> <li>-Performance Reviews</li> <li>-Variance Analysis</li> <li>-Project Management software</li> </ul>	<ul style="list-style-type: none"> <li>-Work Performance Measurements</li> <li>-Budget Forecasts</li> <li>-OPA updates</li> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project document updates</li> </ul>	<ul style="list-style-type: none"> <li>-PV = Planned % Complete x BAC expressed in \$</li> <li>-EV = BAC x Actual % Complete</li> <li>-SV = EV – PV (measured in \$) ( +ive, ahead of schedule)</li> <li>-SPI = EV/PV ( IF &gt; 1, ahead of schedule)</li> <li>-CPI<sub>C</sub> = EVC/ ACC</li> <li>-CV = EV – AC (if +ive, within budget)</li> <li>-CPI = EV/ AC ( CPI &gt; 1 and CV is +ive, within budget)</li> <li>-EAC = BAC / CPI<sub>C</sub></li> <li>-ETC = EAC – AC</li> <li>-VAC = BAC – EAC</li> <li>-TCPI=BAC-EV/EAC-AC (lower than 1 is good)</li> </ul>

Project Quality Management				
Process	Input	Tools and Techniques	Output	Notes
Plan Quality	<ul style="list-style-type: none"> <li>-Scope Baseline</li> <li>-Stakeholder Register</li> <li>-Cost Performance Baseline</li> <li>-Schedule Baseline</li> <li>-Risk Register</li> <li>-EEF/OPA</li> </ul>	<ul style="list-style-type: none"> <li>-Cost Benefit Analysis</li> <li>-Cost of Quality</li> <li>-Control Charts</li> <li>-Benchmarking</li> <li>-Design of Experiments</li> <li>-Statistical Sampling</li> <li>-Flowcharting</li> <li>-Proprietary quality management methodologies</li> <li>-Additional quality planning tools (Brainstorming, Affinity Diagrams, Nominal Group Technique)</li> </ul>	<ul style="list-style-type: none"> <li>-Quality Management Plan</li> <li>-Quality Metrics</li> <li>-Quality Checklist</li> <li>-Project document updates (PM Plan updates)</li> <li>-Process Improvement Plan</li> </ul>	<ul style="list-style-type: none"> <li>-Cost benefit: Looking at how much your quality activities will cost.</li> <li>-Benchmarking: means using the results of quality planning on other projects to set goals for your own.</li> <li>-Design of experiments: is the list of all the kinds of tests you are going to run on your product.</li> <li>-Total Quality Management (TQM): Everyone in the company is responsible for quality and is able to make a difference</li> <li>-Continuous Improvement (Kaizen): constant process improvement in the form of small changes</li> <li>-Just-In-Time(JIT)</li> <li>-ISO 9000: Companies document what they do and they do what they document</li> <li>-Mutually Exclusive: one choice excludes the other</li> <li>-1σ = 68.25%</li> <li>-2σ = 95.46%</li> <li>-3σ = 99.73%</li> <li>-6σ = 99.99966%</li> <li>-Attribute Sampling :is binary, it either conforms to quality or it doesn't</li> <li>-Variable Sampling: Measures how well something conforms to quality</li> <li>-Special Causes: considered unusual and preventable, while common causes are generally acceptable</li> </ul>
Perform Quality Assurance	<ul style="list-style-type: none"> <li>-PM Plan (Quality Management plan, Process Improvement plan)</li> <li>-Quality Metrics</li> <li>-Work Performance Info</li> <li>-Quality Control measurements</li> </ul>	<ul style="list-style-type: none"> <li>-Quality Audits – internal or external</li> <li>-Quality Planning</li> <li>-Process analysis</li> <li>-Tools from Plan Quality and Perform Quality control</li> </ul>	<ul style="list-style-type: none"> <li>-OPA updates</li> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project Document updates</li> </ul>	<ul style="list-style-type: none"> <li>-Proactive steps taken by PM and the mgmt team to insure the quality standards are being help and monitored</li> </ul>
Perform Quality Control	<ul style="list-style-type: none"> <li>-PM Plan (Quality Mgmt Plan)</li> <li>-Quality Checklists</li> <li>-Deliverables</li> <li>-Work Performance Information</li> <li>-Quality Metrics</li> <li>-OPA</li> <li>-Approved Change Requests</li> </ul>	<ul style="list-style-type: none"> <li>-Control charts</li> <li>-Pareto Chart</li> <li>-Cause and Effect Diagram</li> <li>-Scatter Diagram</li> <li>-Run Chart</li> <li>-Flowcharting</li> <li>-Histogram</li> <li>-Statistical Sampling</li> <li>-Inspection</li> <li>-Defect(Approved Change Requests) Review</li> </ul>	<ul style="list-style-type: none"> <li>-Quality Control Measurements</li> <li>-Validated deliverables and validated defect repair</li> <li>-OPA updates</li> <li>-Change Requests</li> <li>-PM Plan updates</li> <li>-Project Document updates (base-line, quality standards)</li> </ul>	<ul style="list-style-type: none"> <li>-Control Charts: Visualize how processes are doing over time. (rule of seven: out of control)</li> <li>-Cause and Effect: Fishbone or Ishikawa. Used to figure out what caused a defect</li> <li>-Pareto Charts: figure out which problems need attention right away. (80-20 rule)</li> <li>-Scatter Diagram: Shows pattern of relationship between 2 variables when 2 variable is dependent on the other</li> <li>-Run Chart: tell about trends in the project. Shows the history and pattern</li> <li>-Flow Chart: Shows how processes interrelate</li> <li>-Histogram: gives an idea of how data breaks down</li> </ul>

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Project Risk Management				
Process	Input	Tools and Techniques	Output	Notes
Planning Risk Management	-EEF/OPA -Cost Management plan -Schedule Management plan -PSS	-Planning Meetings and Analysis	-Risk Management Plan(Methodology, Roles and Responsibilities, Budgeting, Timing, Risk categories, Def of Risk probability and impact, Probability/Impact matrix, Revised stakeholder's tolerance, Reporting formats, tracking)	-Risk Breakdown Structure (RBS): Contains the Risk Categories and not the risks
Identify Risks	-Risk Mgmt Plan -PM Plan -EEF/ OPA -PSS	-Documentation reviews -Information Gathering Techniques (Brainstorming, Delphi Technique, Expert Interviews, Root cause Identification) -SWOT analysis -Assumptions analysis -Checklist analysis (RBS) -Diagramming techniques(Ishikawa or Flowcharts) -Expert Judgment	-Risk Register	-Delphi technique is a way to get opinions and ideas from experts. It uses a facilitator, just like brainstorming sessions. -Documentation reviews is when you look at OPA and any documents to squeeze any possible risk out of them. -Assumptions analysis is when we look as project assumptions
Perform Qualitative Risk Analysis	-OPA -Risk Register -Risk Mgmt Plan -PSS	-Risk data quality assessment -Risk urgency assessment -Risk probability and impact assessment -Probability and impact matrix -Risk categorization	-Updated Risk Register	-Qualitative risk analysis helps you prioritize each risk and figure out its probability and impact
Perform Quantitative Risk Analysis	-OPA -Risk Register -PM Plan -Risk Mgmt Plan -PSS	-Interviewing -Probability Distribution -Expert Judgment -Sensitivity Analysis -Expected Monetary value analysis -Modeling and simulation (Monte Carlo) -Decision Tree Analysis -Tornado Diagram	-Updates Risk Register	-Monte Carlo: run project risks through medling programs to show risk effect -Tornado: shows how sensitive each analyzed area of the project is to risk.
Plan Risk Responses	-Risk Register -PM Plan	Negative risks: 1.Avoid 2.Mitigate 3.Transfer 4.Accept Positive risks 1.Exploit 2.Share 3.Enhance 4.Accept -Contingent Response Strategies -Expert Judgment	isk Register updates -Risk-related Contract Decisions -PM Plan updates -Project Document updates	-Residual risks: those that remain after risk responses have been implemented. -Secondary risks: risks that come from a response to another risk -Exploit: remove any uncertainty and try to make it happen.
Monitor & Control Risks	-Risk Register -PM Plan -Work Performance Information -Performance Reports	-Risk reassessment -Variance and trend analysis -Reserve analysis -Risk Audits -Technical Performance measurement -Status meetings	-Risk Register updates -PM Plan updates -Change Requests -OPA updates -Project Document updates	

Project Procurement Management				
Process	Input	Tools and Techniques	Output	Notes
Plan Procurements	-Scope Baseline -Requirements Documentations -Teaming agreements -Risk Register -Risk-Related Contract Decision -Activity Resource Requirements -Project Schedule -Activity Cost Estimates -Cost Performance Baseline -EEF/OPA	-Make or Buy Analysis -Expert judgment -Contract Types	-Procurement Mgmt Plan -Procurement SOW -Make-or-Buy decisions -Procurements documents -Source selection criteria -Change requests	Fixed Price contracts: -FP -Fixed Price plus Incentive Fee (FPIF) -Firmed Fixed Price Contract is the one most widely used. Cost-reimbursable contracts: -Costs plus fixed prices(CPFF) -Cost plus percentage of costs (CPPC) -Cost plus incentive fee (CPIF) Time and Materials (T&M) Point of Total Assumption (PTA) = Target Cost+(celing price – target price) + company % share of cost overrun
Conduct Procurements	-PM Plan -Procurement Documents -Source Selection Criteria -Qualified Seller list -Seller Proposals -Project Documents -Make-or-Buy decisions -Teaming Agreements -OPA	-Bidder conference -Proposal evaluation techniques -Independent estimates -Expert Judgment -Advertising -Internet search -Procurement negotiations	-Selected Seller(s) -Procurement contract award -Resource calendars -Change requests -PM plan updates -Project document updates	-Oligopoly: There are very few sellers and the actions of one seller will have a direct effect on the other seller's prices and the overall market condition.
Administer Procurements	-Procurement Documents -PM plan -Contract -Performance Reports -Approved change requests -Work performance information	-Contract change control systems -Procurement performance reviews -Inspections/audits -Performance reporting -Payment systems -Claims administration -Records Management system	-Procurement documentation -OPA updates -PM plan updates -Change requests	
Close Procurements	-PM plan -Procurement documents	-Procurement Audits -Negotiated Settlements -Records Management Systems	-Closed Procurements -OPA updates	

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Project Communications Management				
Process	Input	Tools and Techniques	Output	Notes
Identify Stakeholders	-Project Charter -EEF/ OPA -Procurement documents	-Stakeholder analysis -Expert judgment	-Stakeholder Management strategy (Stakeholder analysis matrix) -Stakeholder register	Stakeholder analysis techniques: -Power/Interest grid -Power/Influence grid -Influence/Impact grid -Salience model: power, urgency, and legitimacy of stakeholders
Plan Communication	-EEF/ OPA -Stakeholder Register -Stakeholder Management strategy	-Communications Requirements Analysis -Communications technology -Communication methods -Communication models	-Comm. Mgmt Plan -Updates to project documents	Communication channel = $n(n-1)/2$ Ways of communication: -Active listening -Effective listening -Feedback -Non-Verbal -Paralingual comm. Is vocal but not verbal -Communication Blockers
Distribute Information	-OPA -PM Plan -Performance Reports	-Communication methods -Information distribution tools	-OPA Updates(Project Reports -Project Records -Presentations, correspondence, etc -Stakeholder feedback -Stakeholder Notifications -Lessons learned)	Communication methods: -Informal Written: Emails, memos -Formal Written: Contract, legal notices, project documents -Informal Verbal: Meetings, discussions, phone calls -Formal Verbal: Speeches, mass communication, presentations
Manage stakeholder expectations	-Stakeholder Register -Stakeholder Management Strategy -OPA -PM Plan -Issue Log -Change log	Communication methods(Face-to-face meetings) -Interpersonal skills	-Resolved Issues -Approved Corrective Actions -Approved Change Requests -Updates to OPA, PM Plan	-Face-to-Face meetings are the best communication methods to use where stakeholders issues are concerned.
Report Performance	-PM Plan: performance baseline -Work performance information -Work performance measurements (CV, SV, CPI, SPI) -Budget forecast -OPA	-Variance Analysis -Communication methods -Reporting Systems -Forecasting methods(ETC,EAC)	-Performance Reports -Change Requests -Updates to OPA	-Important note in Report Performance is that Performance Reports are actively pushed to stakeholders rather than waiting for them to pull them down.

Human Resources Management				
Process	Input	Tools and Techniques	Output	Notes
Develop Human Resource Plan	-Activity Resource Requirements -EEF/OPA	-Networking -Organization Charts and Positions Descriptions -Organizational Theory	-Human Resource Plan (Staffing Management Plan). Contains Project Organization Charts, Roles and Responsibilities, release plan, and training needs.	-List, spreadsheets) of positions, roles, and reporting matrix Based Charts (i.e. RAM/RACI)relationships: They have varying designs based on the need of the project or OPA
Acquire Project Team	-PM Plan(HR Plan) -EEF/OPA	-Pre-assignments -Negotiations -Acquisitions -Virtual Teams	-Project Staff assignments -Resource Calendar -PM Plan updates	-Negotiations is the most important in T&T -Pre-assignment is when you already build assignment in the HR plan because some team members are already assigned to you -Virtual teams is when team members don't all work in the same location -Resource availability tells the company when the team members will be available once released from project
Develop Project team	-Project Staff Assignments -PM Plan -Resource Calendar	-Interpersonal Skills -Training -Team Building Activities -Ground rules -Co-location -Recognition and Awards	-Team Performance Assessment -EEF updates	Five kinds of power: -Reward power, Expert power, Referent power, Punishment power(coercive), legitimate power Team Motivation: -Maslow's hierarchy of needs (you can't achieve higher needs until you're satisfied with the lower ones) -Herzberg's Motivation-Hygiene Theory: satisfying personal life, good paycheck -McGregor's Theory X and Theory Y: Theory X distrusts team members. Theory Y manager trusts team members -Expectancy Theory: need to give people an expectation of a reward in order to motivate them, but it only works if the award is achievable. -McClelland's Achievement Theory(Theory of three needs): says that people need achievement, power, and affiliation to be motivated -Ouchi's Theory of – "Z Theory": Productivity can be increased by how well the workers and management get along and trust each other. Japanese style of management -Vroom's Expectancy Theory -Contingency Theory: In stressful times, task-oriented leader will be more effective, while in relatively calm times a relationship-oriented leader will function more effectively. Leadership styles: -Autocratic: Strong style. PM makes all decisions -Bureaucratic: Pm gathers input from team members and attempt to gather multiple considerations before making a decision -Democratic -Laissez-faire: "hands-off" style that only interferes if needed
Manage Project Team	-Project Staff Assignments -PM Plan -Team Performance Information -Performance Reports -OPA	-Observation and Conversation -Project Performance Appraisals -Conflict Management -Issue Log -Interpersonal Skills	-Change Requests -PM Plan updates -EEF updates -OPA updates	Conflict Management techniques: -Problem solving: also called Confronting. It's a Win-Win situation -Compromising: Lose-Lose method -Withdrawal: Lose-Leave method -Smoothing Lose-Yield method -Forcing: Win-Lose method

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